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August 27, 2004

**RICHES, MCKENZIE & HERBERT LLP**  
1800 - 2 Bloor St. East  
TORONTO Ontario  
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Application No. : **2,303,512**  
Owner : **SAMBO COPPER ALLOY CO., LTD.**  
Title : **FREE CUTTING COPPER ALLOY**  
Classification : **C22C-9/04**  
Your File No. : **P154499**  
Examiner : **S. Woodhead**

YOU ARE HEREBY NOTIFIED OF :

- A REQUISITION BY THE EXAMINER IN ACCORDANCE WITH SUBSECTION 30(2) OF THE *PATENT RULES*;
- A REQUISITION BY THE EXAMINER IN ACCORDANCE WITH SECTION 29 OF THE *PATENT RULES*.

IN ORDER TO AVOID **MULTIPLE ABANDONMENTS** UNDER PARAGRAPH 73(1)(A) OF THE *PATENT ACT*, A WRITTEN REPLY TO EACH REQUISITION MUST BE RECEIVED WITHIN **6 MONTHS** AFTER THE ABOVE DATE.

This application has been examined taking into account applicant's correspondence received in this office on March 18, 2003.

The number of claims in this application is 12.

The examiner has identified the following defects in the application:

A search of the prior art has revealed the following:

Reference Applied:

Canadian Patent

1243226

Oct. 18, 1988

Ruchel et al

It appears that the applicant's reason for adding the qualifier that "the copper alloy has at least one phase selected from the  $\gamma$  phase and the  $\kappa$  phase" was two-fold, to unify the inventive concept and to overcome the citation of alloys of similar composition in the prior art; however, the restrictive clause is considered to be an over-simplification and too broad to adequately define an effective presence of either phase.



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(11) (A) No. 1 243 226

(45) ISSUED 881018

(52) CLASS 75-17  
C.R. CL. 148-11

(51) INT. CL. C22C 9/04<sup>4</sup>

(19) (CA) **CANADIAN PATENT** (12)

(54) Brass Alloy, Manufacturing Process and Use

(72) Ruchel, Peter;  
Hofmann, Lothar,  
Germany (Federal Republic of)

(73) Granted to Diehl G.m.b.H. & Co.  
Germany (Federal Republic of)

(21) APPLICATION No. 484,737

(22) FILED 850621

(30) PRIORITY DATE Germany (Federal Republic of)  
(P 34 27 740.4) 840727

No. OF CLAIMS 13

Canada

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CCA-274 (11-82)

Abstract of the Disclosure

The invention relates to a brass alloy, and its method of preparation having the following composition (in % by weight): 10 to 35% zinc 4 to 12% manganese, 2 to 7% aluminium, 1.1 to 4% silicon, 0.01 to 0.15% chromium and/or zircon, provided that the silicon is bound for the most part in the form of manganese silicide, and optionally up to 2% lead, up to 2% nickel, up to 1% usual impurities, whereby the portion of iron impurities may not exceed 0.7%, the remainder being copper. The brass alloy material is particularly useful for making synchronizing disks because of its high resistance to wear and good workability.

1243226

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE  
PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A brass alloy comprising (in % by weight):

10 to 35% zinc

4 to 12% manganese

2 to 7% aluminium

1.1 to 4% silicon

0.01 to 0.15% chromium and/or zircon

provided that a majority of silicon is bound in the form of manganese silicide,

0 to 2% lead

0 to 2% nickel

0 to 1% usual impurities,

whereby the portion of iron impurities does not exceed 0.7%, and the remainder  
of the alloy is copper.

2. A brass alloy according to claim 1, wherein the silicon portion is  
between 1.5 and 3%.

3. A brass alloy according to claim 1, wherein the chromium and/or  
zircon portion is between 0.05 and 0.1%.

4. A brass alloy according to one of the claims 1 to 3, wherein the  
manganese portion is at least 6%.

5. A brass alloy according to one of the claims 1 to 3, wherein the  
manganese silicide content is higher than 5%.

6. A method for manufacturing a brass alloy defined in claim 1 or a  
semi-finished product made from said brass alloy which comprises casting the